CONGRESS OF SCANDINAVIAN GEOPHYSICISTS IN GOTHENBURG AUGUST 28–31, 1918.

By HANS PETTERSSON, General Secretary.

[Dated: Gothenburg, Nov. 27, 1918.]

At the invitation of Dr. G. Ekman, Prof. O. Nordenskjöld, Prof. O. Pettersson and other scientists of Gothenburg, Sweden, a highly representative congress of about 50 Danish, Norwegian, and Swedish geophysicists met in that city during the last days of August this year. Representatives from Finland had also been invited but were unable to be present.

At the opening meeting Prof. Hildebrandsson, of Upsala, was unanimously elected president, supported by three vice presidents, viz, Director Ryder (Denmark), Prof. Bjerknes (Norway), and Prof. Nordenskjöld (Sweden); General Secretary, Dr. Hans Pettersson.

Prof. Bjerknes, of Bergen, opened the first general meeting with a paper on weather forecasting, describing a new and most successful method of short-range prognostics for agricultural purposes established in western Norway during the summer 1918. [Published pp. —, —, of this REVIEW.]

During the following days meetings were held, partly general and partly by sections. In all, 30 papers were read, many of these of very great interest.

One afternoon was devoted to the aurora borealis phenomenon, a forenoon to prognostics, and the last afternoon was occupied by very animated discussions of future Scandinavian cooperation within different branches of the geophysical science.

Finally a number of resolutions were moved and adopted by the congress in pleno and a committee formed with the object of calling together a second congress in due time.

Abstracts of the papers read before the congress will shortly be published.

RESOLUTIONS ADOPTED BY CONGRESS.

I. In favor of an extension of the existing system of simultaneous photographic altitude measurements of the aurora borealis started by Prof. Störmer, to comprise the whole of Scandinavia during the winter 1918–19. (Moved by Prof. Störmer, of Christiania.)

II. In favor of the plan proposed by Prof. de Geer that measurements of the yearly deposits of loam occurring in lakes blocked by ice and in shallow bights, which derive from the melting of Scandinavian and arctic glaciers, should be carried out in connection with de Geer's *geochronological measurements of the annual striæ* in post Tertiary deposits of similar origin. (Moved by Prof. de Geer.)

III. In favor of establishing a system of continuous synoptic observations of the internal movements in the sea round the coasts of Scandinavia compared with simultaneous meteorological phenomena and fishery statistics. (Moved by Dr. Hans Pettersson (Sweden) and others.) [See Dr. Pettersson's paper on this subject on pp. 100–105 of this REVIEW.]

IV. In favor of the establishing of aerological observations in different parts of Scandinavia. (Moved by Prof. Hesselberg, Christiania.)

V. Emphasizing the need for cooperation between the geophysicists of the Scandinavian countries, both with regard to laboratory and field research, which proposal the Governments of these countries are requested to facilitate as much as possible.

VI. In favor of the project drafted by O. Pettersson that a first-class scientific institute shall be established in Gothenburg for oceanography, marine meteorology, and aerology with the object of studying the dynamics of the movements occurring in the atmosphere and the sea, which determine the climate and the weather of the Scandinavian countries, and of studying the influence of these factors on agriculture, fisheries, navigation, and aeronautics. (Moved by O. Pettersson and seconded by 10 representatives for Denmark, Sweden, and Norway.

WEATHER FORECASTING.

By Prof. V. BJERKNES.

[Address delivered at the meeting of Scandinavian geophysicists at Gothenburg, Aug. 28, 1918.]

It is possible that more than one solution may be found to the problem of satisfactory and practical weather forecasting. It is also possible that among these we may be able to find methods which obviate the necessity of a complete understanding of the phenomenon whose development we are to forecast. Personally, I have no interest in such methods. I am interested in only that method which is based upon a full understanding of the phenomena involved.

Even if this method is difficult, we have at any rate a safe guide. The leading idea is the following: All atmospheric processes obey the laws of physics, first of all those of mechanics and thermodynamics. We are, therefore, really in possession of all the theoretical knowledge necessary to determine future weather. It resides in the equations of mechanics and thermodynamics, or more generally expressed, in the equations of physics. These contain the answer to all questions about the future weather, if only the observations can give us the concrete data with which we are to deal.* The problem of determining the future weather may therefore be reduced to the solution of two special problems:

1. The practical, the obtaining of the necessary concrete data through observation.

2. The theoretical, the evolving of the methods whereby the knowledge contained in the equations can be applied to the observations.

If we state the problem in its most precise form, as a mathematical problem, we can not hope to solve it in the near future. But if we put it into a more practical form, we will then see that the line of progress lies in the continuation of the methods which the meteorologists followed when they began the study of atmospheric processes by drawing synoptical maps, from which they found the baric wind law [Buys Ballot's law], etc. We therefore need not doubt that in this way we will arrive at results which will give us a better understanding, and which will thus react upon meteorological practice.

To a certain extent this has already been confirmed. But the idea of engaging myself in meteorological practice was unthought of, even a few months ago. When, however, the critical time came, when duty demanded

*The effects due to discontinuities in the amount of the atmosphere due to evaporation and condensation are necessarily included.—W. J. H.